NMe₂
$$O=S=O$$
 $O=S=O$ $O=S$ O

Figure 1: Synthesis of 4-(N,N-dimethylamino)pyridinium 4-toluenesulfonate

Figure 2: Synthesis of 3',5'-di-(Boc-L-valinyl)-L-2'-deoxycytidine

Figure 3: Synthesis of 1- α -chloro-3,5-di-O-toluoyl-2-deoxy-L-ribose and coupling with silylated thymine.

Figure 4: Synthesis of 3'-O-L-valyl-2'-deoxy-β-L-cytidine from 2'-deoxy-β-L-uridine